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10/594,556

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EXAMINER

D AGOSTA, STEPHEN M

ART UNIT

PAPER NUMBER

2617

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/594,556

**Applicant(s)**GOLITSCHKE EDLER VON  
ELBWART ET AL.**Examiner**

Stephen D'Agosta

**Art Unit**

2617

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 January 2012.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 5) ☒ Claim(s) 18, 21, 22, 24-30 and 34 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 18, 21, 24-30 and 34 is/are rejected.
- 8) ☒ Claim(s) 22 is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

1. A new rejection is found below which addresses the applicant's amended claims.

2. The examiner interprets the claim language as follows:

i. The independent claims have been amended to include the limitations found in previous claim 32 (now cancelled), which states:

*"..wherein the minimum resource parameter represents a sufficient quantity to exceed a power efficiency threshold in the scheduling frame".*

ii. For examination purposes, this is interpreted as teaching "correlating" between the amount of allocation units (eg. bandwidth) desired by the user AND the power efficiency threshold such that the amount of allocation units/bandwidth provided maintains or exceeds the power efficiency parameter.

Hence a (power efficiency) level/threshold is set and a calculation is performed to determine if the power efficiency will be maintained/exceeded as based upon the amount of allocation units/bandwidth which is requested (or to be assigned).

For example:

- A request is made for 5kbps
- A power efficiency threshold is set to 60%
- The system correlates/calculates if it can assigned the 5kbps channel to the user and stay AT OR ABOVE the 60% efficiency level.

iii. The examiner notes that there is an INHERENT correlation between the power level and the amount of bandwidth that can be successfully transmitted, eg. the greater the power, the greater the bandwidth

transmitted since the data is more optimally received. Hence, as the amount of bandwidth desired increases, the efficiency will decrease (to the point where the power efficiency threshold is not met and the system will deny the request (or perhaps find a bandwidth which can successfully meet the power efficiency threshold)).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 18, 21, 24-30 and 34** rejected under 35 U.S.C. 103(a) as being unpatentable over Choksi and further in view of Berger, Canserver and {Klein or Holtzman}.

As per **claims 18 and 34**, Choksi teaches a method for performing a scheduling algorithm in a scheduler of a wireless communication system (figure 2 shows a bandwidth allocation controller which reads on a “scheduler”, C4, L17-65), comprising:

obtaining from a communication unit a minimum resource parameter that indicates a minimum number of allocation units to be scheduled for a user or service in a scheduling frame in order to meet a resource constraint of the communication unit (C7, L5-15 teaches a bandwidth request from a mobile unit such as a handoff request, call admission request, an additional bandwidth request or ANY OTHER suitable type Of request for bandwidth for a wireless

connection - which reads a request for a minimum resource parameter that indicates a minimum number of allocation units/bits needed – hence this can be a voice channel or data channel which have known minimum rates that are constrained at least by the transceiver hardware), and

scheduling, in the scheduling frame, resources for radio access to the communication unit wherein the resources are scheduled in the allocation units and in accordance with the minimum resource parameter (C7, L16-30 teach whereby the bandwidth is allocated as per the real-time constraints of the cell, eg. congestion, power, available links/bandwidth, etc, see C7, L42-60)

wherein “none/some/all” allocation units are scheduled to the communication unit within the scheduling frame (C7, L5-L60 teaches allocating bandwidth)

**but is silent on** only if the minimum number of allocation units indicated by the minimum resource parameter can be scheduled for the service or user AND wherein the minimum resource parameter represents a sufficient quantity to exceed a power efficiency threshold in a scheduling frame.

As seen, the applicant’s claim puts forth that the request will be (may be?) blocked if the minimum number of allocation units/bits cannot be scheduled. Choksi teaches the bandwidth allocation controller will give whatever amount it can give (eg. none/some/all) depending upon real-time conditions, hence the request will only be “blocked” if no channels/bandwidth is available.

This is clearly a **design choice** since the wireless user is either denied a channel/bandwidth (because the user did not know the amount of bandwidth remaining and their request was over the said amount remaining – which turns into a guessing game) and/or the user is given a channel/bandwidth with perhaps much less than their request and the “service” is poor (eg. the user wants video data at 200kbps but only gets 9.kbps).

The examiner puts forth two different “designs” which either modify the user’s requested bandwidth amount OR deny the request altogether:

i. **Berger** teaches a bandwidth request being modified if the request is over the amount of bandwidth currently available (figure 7, #208, #210):

In step 208, the network element 98 determines whether the available rate is less than the requested rate. If not, then the rate encoded in the BCR field 26 of the RM cell 20 is left unchanged in step 214, and the RM cell is transmitted back to the network along the connection in step 212. If the granted rate is less than the requested rate or the presently established rate, then in step 210 the available rate is written over the requested rate in the BCR field 26. Subsequently in step 212, the RM cell 20 having a new BCR field 26 is transmitted back to the network for propagation along the connection. (C7, L55 to C8, L5)

ii. **Cansever** clearly teaches denying the bandwidth request if the amount requested is over the amount available (claim 38):

38. The apparatus of claim 27, wherein the program denies the requested bandwidth if the requested bandwidth is greater than the maximum available bandwidth of the first node.

Choksi/Berger/Cansever combine to teach determining a channel bandwidth to be allocated and scheduling of the transmission (to optimize the cell's communication in relation to all currently supported users).

Also see Klein or Holtzman:

i. Klein teaches using a gain threshold and power level, which reads on the claim.

ii. Similarly Holtzman teaches determining the previously used and predicted power requirements to transmit data to the mobiles, see figure 4, which reads on determining if the power is available as based on an "efficiency threshold" **since the data rate will be modified if the power requirement/threshold is exceeded**, see figure 5 steps 542-546).

Hence the examiner notes that one skilled can provide many different ways with which to handle bandwidth requests as based on the real-time availability of the controller's bandwidth.

It would have been obvious to one skilled in the art at the time of the invention to modify Choksi, such that the channel is allocated only if the minimum number of allocation units indicated by the minimum resource parameter can be

scheduled for the service or user AND wherein the minimum resource parameter represents a sufficient quantity to exceed a power efficiency threshold in a scheduling frame, to provide means for allocating bandwidth to user only if the amount requested is available in relation to a power efficiency threshold.

As per **claims 21**, the combo teaches claim 18, wherein the minimum resource parameter represents a minimum number of information bits per scheduling frame for a user or a service (Choksi teaches determining what amount can be provided based on real-time availability/priority/etc. while Berger/Cansever teaches either modifying the amount requested or denying the request).

Also see previously identified prior art which is now “pertinent but not cited”:

“the prior art teaches a standard/typical channel, eg. 9600bps and also changes to the power and data rate, see Hoagland/Klein and Havinga teaches an energy efficient MAC protocol which takes into account the amount of data per frame”.

As per **claims 24-25**, the combo teaches claim 18, wherein the minimum resource parameter is signaled periodically from the communication unit to the scheduler OR from a request by the scheduler (Choksi teaches communicating with various mobile units who may make requests from time-to-time and even during an on-going call, eg. he teaches a request for additional bandwidth and/or handoff, which reads on the claim -- C7, L5-15 teaches a bandwidth request from a mobile unit such as a handoff request, call admission request, an additional bandwidth request or ANY OTHER suitable type Of request for bandwidth for a wireless connection).

As per **claim 26**, the combo teaches claim 18, **but is silent on** wherein the signaling of the minimum resource parameter is initiated by the communication unit upon fulfillment of power management conditions.

The claim is given a broad/reasonable interpretation such that “fulfillment of power management conditions” means that the mobile is instructed/commanded by the BTS to set its power to a certain level and then commence with data transmission.

a. Power control is well known in the art and can be either closed-loop or open-loop control (eg. mobile feedback or no feedback).

b. Choksi teaches understanding of power control functions so as not to exceed maximum power of the transmitter and damage it (C1, L24-40).

b. Klein – pertinent but not cited - clearly teaches the BTS sending power instructions to the mobile so that an optimal power level is set (eg. either before or during voice/data transmission), see at least claims 2-3 and 5.

It would have been obvious to one skilled in the art at the time of the invention to modify the combo, such that the signaling of the minimum resource parameter is initiated by the communication unit upon fulfillment of power management conditions, to provide means for the mobile to first comply with the BTS's power command before transmitting (so as not to inject interference into the network if the mobile's power is too high).

As per **claim 27**, the combo teaches claim 18, wherein the scheduling step includes considering in addition at least one of the following scheduling parameters channel condition, amount of data available for transmission, quality of service, delay, data rate and carrier to interference ratio (the prior art teaches determining channel conditions, type or amount of data (eg. voice, video), QoS since voice/video have different requirements, interference conditions/SNR, etc.. Choksi clearly teaches Qos, C1, L60 to C2, L34, Class of Service such as Premium/Assured/Best Effort and the ability to use both in processing a request, Fgiure 3, #161, 162, 164, 166).

As per **claim 28**, the combo teaches claim 18, wherein the scheduling frame has at least one of a time division, frequency division or code division



frame structure (the prior art teaches various cellular protocols, including at least FDMA and CDMA, see Choksi, C3, L32-42)

As per **claim 29**, the combo teaches claim 18, wherein the allocation units have a quantity of either one of transmittable information bits, internet protocol packets, code blocks or modulation symbols (the prior art teaches at least “data rates” which infer information bits – eg. bits per second – and Choksi teaches frames, packets, cells, datagrams and TCP/IP, C3, L32-61 ).

As per **claim 30**, the combo teaches claim 18, wherein the minimum resource parameter is signaled by the communication unit on a separate control channel associated to the data channel over which the allocation units are transmitted (the use of a CONTROL CHANNEL is well known and taught by Holtzman\*, C5, L32-35, and would be used to provide control to the mobile. Similarly the “control data” could also be embedded in the user data in a user’s dedicated voice/data channel. Berger teaches “control data” being transmitted/processed, C7, L5-22).

*\*pertinent but not cited*

### ***Allowable Subject Matter***

**Claim 22** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

This claim presents highly detailed concepts not found in the prior art of record.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen D'Agosta whose telephone number is (571)272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinsong Hu can be reached on 571-272-3965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen D'Agosta/  
Primary Examiner, Art Unit 2617